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A3V V11D

(56) Documents Cited

GB 2341227 A GB 2316293 A
GB 1468323 A EP 1020325 A2
US 6097287 A US 5353008 A

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(54) Abstract Title
Signal lamp system for the rear of a helmet

(57) A brake lamp is attached to a helmet and indicator lamps may be positioned on either side of the brake lamp, both types of lamp being incorporated into an arcuate housing for mounting onto the helmet. Double sided adhesive strips secure the housing and a foam strip absorbs vibrations. Light is provided by either incandescent bulbs with coloured lenses, or by coloured LEDs, powered by either a battery or the electrical system of a vehicle. The lights may linked to the braking and indicating system of a vehicle, either by a cable or by a wireless connection. This connection can be disabled by a switch which is sufficiently large to be operated by a gloved hand, so that a pillion passenger is not dazzled. The system is specifically designed for use with motorcycles, but may also be applied to bicycles.

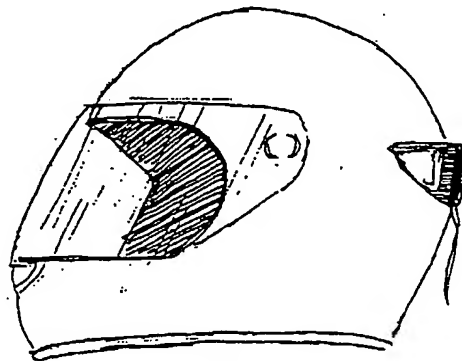


Fig 4

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SHEET 1/1

All lenses are removable

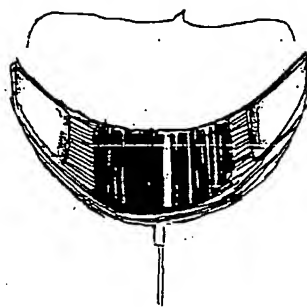
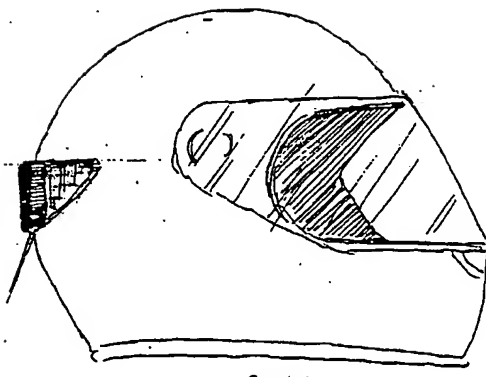
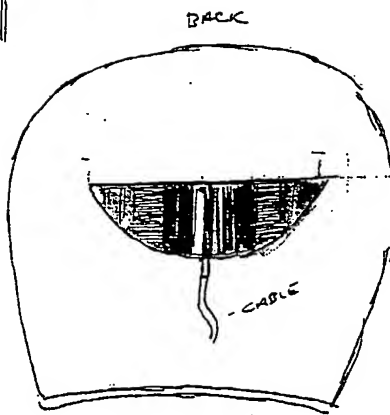


Fig 1

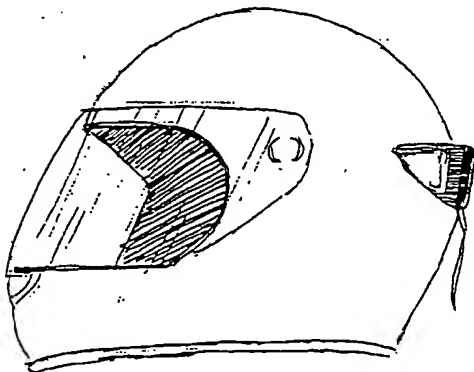


Right
Fig 2

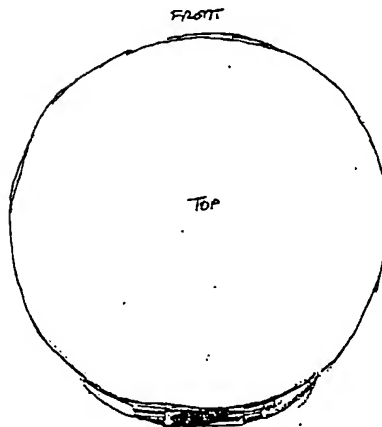


BACK

Fig 3



Left
Fig 4



FRONT

TOP

Fig. 5

HELMET-MOUNTED SIGNAL LIGHT

The present invention relates generally to signal lights provided as an add-on unit for attachment to safety helmets for riders of motorcycles, bicycles and other vehicles,
5 and particularly to signal lights functioning as brake lights and direction indicators.

Several inventors have made proposals for safety helmets incorporating signal lights.

For example, United States Patent 4,559,516 describes a helmet with turn signal
10 indicator for a motorcycle rider that includes a pair of turn signal lamps activated by a head tilt switch. The rider can sense if the lamps are lit by means of fibre optics which transmit the illumination of the lamps to the front of the helmet.

United States Patent 4,760,373 describes a helmet with a brake light activated by
15 wireless connection to a brake light system of a motorcycle. The helmet brake light is activated by a transmitter in series or parallel connection with the motorcycle brake light.

United States Patent 4,891,736 describes a signal helmet with tail, brake and
20 directional indications activated by wired or wireless connection to a brake light system of a motorcycle. The helmet brake light is in series or parallel connection with the motorcycle brake light.

United States Patent 5,040,099 describes a motorcycle helmet with a brake lamp
25 attached thereto and activated by optic or sonic connection to a brake light system of a motorcycle.

United States Patent 5,207,500 describes a motorcycle helmet with a plurality of
headlights attached thereto and activated by wired or wireless connection to a
30 motorcycle.

United States Patent 5,353,008 describes a motorcycle helmet with a brake lamp that

includes a duty cycled receiver circuit for receiving a radio frequency signal from a transmitter located on a motorcycle.

International Patent Application WO 98/36213 describes a motorcycle helmet with a
5 brake light. The motor cycle has a braking sensor that detects a deceleration of the vehicle independently of illumination of the fitted brake light of the vehicle, and the sensor activates the helmet brake light.

The problem with a purpose-built helmet is expense; firstly for the manufacturer to
10 validate a new structure with respect to regulatory procedures, and secondly in persuading users to dispose of existing helmets and purchase a new one.

There remains a need for a low-cost alternative to the specially made helmets of the prior art, to ensure that an important safety development is available for riders of all
15 income levels. The cost aspect is especially important in the case of a rider who owns two helmets, so that a spare is available for a passenger.

The present invention proposes a helmet lamp system including at least a brake light and preferably including direction indicator lights, which is a lamp unit attachable
20 releasably or permanently to the user's existing helmet. The direction indicator lights are a pair of lights positioned one on each side of the brake light with sufficient spacing within the confines of the helmet shape to be distinguishable as left and right turn signals.

25 The lamp unit includes a housing for mounting suitable bulb holders and lenses, and electrical circuitry to connect the bulb to a source of electricity, which may be a battery in the housing or provided by a wired connection from the vehicle's electrical system. The illumination may be provided by conventional tungsten or halogen bulbs or by light emitting diodes (LED). If LEDs of appropriate colour are available then
30 the lenses may be optional.

The lamp unit may be releasably attached to a helmet, so that it can be transferred to the helmet of a pillion rider when the principal rider is not travelling solo.

Alternatively, the lens and bulb holder may be removable from the lamp housing for transfer to a lamp unit housing attached to the helmet of a passenger, so as to visible
5 to following traffic. However, as mentioned above, it is anticipated that the relatively low cost will allow a rider to equip a spare helmet for use by passengers.

The signals to activate the helmet mounted brake lights and/or direction indicators may be relayed to the helmet lamp unit by a wired connection from the circuitry
10 provided on the vehicle to operate the vehicle's on-board brake lights and direction indicator. Alternatively, signals can be transmitted by a wireless connection using appropriate telemetry systems.

Preferably, means are provided to inactivate the principal rider's unit when carrying a
15 passenger, so that the driver's helmet lights do not operate in the vision of the passenger. At its simplest, the principal rider's unit may be inactivated by removing lenses/bulb holder from the driver's unit, or removing the whole unit, optionally transferring the lens or unit to the passenger's helmet, as described above.

Alternatively, appropriate switching means may be provided in the circuitry for
20 activating the helmet mounted brake lights and/or direction indicators. Preferably, a simple on/off switch is provided on the housing, desirably dimensioned so that it can be operated by a gloved rider.

Suitable electrical connection systems and signal carriers of the wired and wireless
25 type are disclosed in the above-mentioned US Patents 4,559,516; 4,760,373; 4,891,736; 5,040,099; 5,207,500; 5,353,008, the whole contents of which are incorporated herein by reference. Also, the brake light may be operated by a deceleration detector as in WO 98/36213, the whole contents of which are also

30

An embodiment of the invention is illustrated, by way of example only, in the accompanying drawings in which:

Figure 1 shows a lamp unit in accordance with this invention;

Figure 2 is a right-sided view of a helmet with the lamp unit attached;

Figure 3 is a rear view of a helmet with the lamp unit attached;

5 Figure 4 is a left side view of a helmet with the lamp unit attached;

Figure 5 is a top view of a helmet with the lamp unit attached.

Referring to the drawings, Figure 1 shows a lamp unit comprising a housing 1 with a centrally mounted brake light lamp 2 comprised of a red lens and bulb holder and
10 peripherally mounted direction indicator lamps 3 and 4 comprised of a white/orange lens (depending on local legal requirements) and associated bulb holder. The lamp housing 1 has an arcuate shape to match the profile of a safety helmet.

The housing 1 includes electrical connections for illumination of the bulbs in the
15 respective bulb holders. Power for illuminating the bulbs may come from a battery within the housing or via a cable 5 which may be linked to the vehicle's electrical system. The cable 5 can also include wiring to relay on/off signals from the vehicle's on-board circuitry for activating the brake lights and direction indicators.

Alternatively, the on/off signals may be transmitted from the vehicle by a wireless
20 connection which is picked up by a pigtail antenna 5 or an antenna located within the lamp housing 1.

It is important that the housing is attached to the helmet by a securing means which does not affect the integrity of the helmet structure and so damage the safety
25 characteristics of the helmet or offend against regulatory requirements. Suitable attachment may be achieved using self-adhesive strips, preferably of the double-sided variety. One side of the adhesive may be formulated for a releasable connection so that the lamp housing can be removed leaving the adhesive strip attached to one or other of the lamp unit or helmet. Suitably the pressure-sensitive tapes are of the type
30 in which the adhesive surfaces are attached to foam strips, since the deformation of the foam strip as the housing is pressed against the helmet ensures a snug contact between the adhesive and the helmet, and also provides an anti-vibration mounting.

CLAIMS

1. A helmet lamp system comprising a lamp unit attachable releasably or permanently to a helmet, said lamp unit supporting at least a brake light.
 2. A helmet lamp system according to claim 1 wherein the lamp unit comprises a brake light and direction indicating lights.
 3. A helmet lamp system according to claim 2, wherein the direction indicating lights are a pair of lights positioned one on each side of the brake light.
 4. A helmet lamp system according to claim 3, wherein the pair of lights are positioned one on each side of the brake light with sufficient spacing within the confines of the helmet shape to be distinguishable as left and right turn signals.
 5. A helmet lamp system according to any preceding claim wherein the lamp unit includes a preferably arcuate housing for mounting the or each light.
 6. A helmet lamp system according to claim 5, wherein the or each light is an LED or bulb.
 7. A helmet lamp system according to claim 5 or 6, wherein optionally coloured lenses are provided in front of the or each light.
-

8. A helmet lamp system according to any preceding claim further comprising electrical circuitry to connect the or each light to a source of electricity.

9. A helmet lamp system according claim 8, wherein the source of electricity is a battery or wired connection from a vehicle's electrical system.

10. A helmet lamp system according to any preceding claim wherein the or each light is removable from the lamp unit for placement in another lamp unit.

11. A helmet lamp system according to any preceding claim wherein signals to activate the helmet mounted brake lights and/or direction indicators are relayed to the lamp unit by a wired connection from the circuitry provided on a vehicle to operate the vehicle's on-board brake lights and/or direction indicators.

12. A helmet lamp system according to any of claims 1 to 10, wherein signals to activate the helmet mounted brake lights and/or direction indicators are relayed to the lamp unit by a wireless connection from the circuitry provided on a vehicle to operate the vehicle's on-board brake lights and/or direction indicators.

13. A helmet lamp system according to any preceding claim further comprising means to inactivate a lamp unit.

14. A helmet lamp system according claim 13, wherein the means to inactivate a lamp unit comprises a switch.
15. A helmet lamp system according claim 14, wherein the switch is dimensioned to be operated by a gloved vehicle rider.
16. A helmet lamp system according claim 13, wherein the means to inactivate a lamp unit comprises a removing the or each light.
17. A helmet lamp system according claim 13, wherein the means to inactivate a lamp unit comprises removing the lamp unit from a helmet.
18. A helmet lamp system substantially as hereinbefore described with reference to and as shown in the accompanying drawings.





INVESTOR IN PEOPLE

Application No: GB 0108904.4
Claims searched: 1-18

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Examiner: Andrew Hughes
Date of search: 10 May 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): A3V V11D; F4R RAG, RMR

Int Cl (Ed.7): A42B 3/04; B60Q 1/38, 1/44; F21L 2/00

Other: Online: EPODOC, WPI & JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2341227 A (RODBOUNE) particularly figures 1-3 and pages 2 & 3	1-17
X	GB 2316293 A (CADENHEAD) whole document	1-6, 8, 9, 11-17
X	GB 1468323 A (ZINER & SOUDER) whole document	1-17
X	EP 1020325 A2 (BOUSAHBA) abstract and figures	1-9 at least
X	US 6097287 A (LU) whole document	1, 10 & 12
X	US 5353008 A (EIKENBERRY <i>et al.</i>) whole document	1, 5-9, 12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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